IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF SOUTH CAROLINA
AIKEN DIVISION

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| SAVANNAH RIVER SITE WATCH, TOM CLEMENTS, THE GULLAH/GEECHEE SEA ISLAND COALITION, NUCLEAR WATCH NEW MEXICO, and TRI-VALLEY COMMUNITIES AGAINST A RADIOACTIVE ENVIRONMENT,<br><br>Plaintiffs,<br><br>v.<br><br>UNITED STATES DEPARTMENT OF ENERGY, JENNIFER GRANHOLM, in her official capacity as the Secretary, The NATIONAL NUCLEAR SECURITY ADMINISTRATION and JILL HRUBY, Administrator,<br><br>Defendants. | ) | No. 1:21-cv-01942-MGL<br><br>**DECLARATION OF CARL RAYMOND SYKES, IN SUPPORT OF DEFENDANTS' RESPONSE BRIEF** |

I, CARL RAYMOND SYKES, make the following Declaration pursuant to the provisions of 28 U.S.C. § 1746.

1. I am employed by the National Nuclear Security Administration (NNSA) at the Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico, as a Senior Technical Safety Advisor. I have served in this current capacity since December 2020.

2. I currently serve as the NNSA Field Office Senior Technical Safety Advisor, regularly engaging with the Defense Nuclear Facility Safety Board (DNFSB) Los Alamos Resident Inspectors as well as DFNSB Headquarters Staff to address nuclear safety issues. Prior to joining NA-LA, I was the Director of NNSA's Chief of Defense Nuclear Safety at NNSA headquarters.

3. The direct cause of the 2014 WIPP event was an energetic chemical reaction which caused the over-pressurization of a LANL TRU waste drum that had been emplaced in a disposal room underground at WIPP. The over-pressurization was caused by a chemical incompatibility that was the result of an error introduced in a revision to the Waste Characterization, Reduction, and Repackaging Facility (WCRRF) glovebox operating procedure. The procedure revision incorrectly specified the use of organic absorbent rather than an inorganic absorbent. The organic absorbent initiated a chemical reaction

with the nitrate salt waste in the drums, which resulted in off gassing and pressurization that ultimately breached one of the drums in the WIPP underground facility. The DOE/NNSA and contractor identified that the problem originated with the procedure revision error specifying the use of "an organic absorbent," rather than an "inorganic absorbent."

4. I am familiar with the National Defense Nuclear Facilities Safety Board (DNFSB) Technical Document 46 Report, dated September 2020, "Potential Energetic Chemical Reaction Events Involving Transuranic Waste at the Los Alamos National Laboratory" (the 2020 DNFSB Technical Report), the WIPP 2014 event discussed therein, and the corrective measures implemented in response thereto. I served as the NNSA Federal Document Manager for that DNFSB response. There are two key takeaways from the DNFSB Technical Document 46 Report as follows:

   (a) The 2020 DNFSB Technical Report evaluated how DOE analyzed hazards and implemented controls at the facilities that generate, process, and store nuclear waste, including TRU waste. Such evaluation resulted in the DNFSB concluding that the hazard and accident analyses of certain DOE/NNSA facilities did not fully analyze energetic chemical reaction hazards involving transuranic waste. In addition, the DNFSB concluded that DOE directives did not provide adequate guidance and requirements for analyzing and controlling energetic chemical reaction events at waste generator sites. Accordingly, the DNFSB recommended that DOE "consider" addressing this "gap" as it revises DOE Standard 5506.

   (b) In *direct* response to the concerns raised by the DNFSB in the 2020 Technical Report, DOE promulgated revisions to DOE-STD-5506-2021, *Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities.* The revised Standard included a completely new Section (i.e., Section 3.3.8: Chemical Initiated Events), which specifically addressed the 2020 DNFSB Report's concern regarding chemical compatibility hazard analysis.

5. NNSA prepared a supplement analysis (SA) to the 2008 LANL SWEIS (2020 LANL SA) (DOE/EIS-380-SA-06) and determined that no further NEPA analysis was needed or warranted in relation to the 2014 incident as it was the result of a one-time error that was immediately corrected. *See* 85 FR 54544.

   The original WCRRF operating procedure with that error was replaced for that facility to support post-WIPP recovery efforts at LANL. In response to the incident, significant programmatic changes were implemented at LANL and at WIPP—in fact, for all WIPP defense TRU generator sites—including enhanced waste characterization requirements and review of chemical compatibility to significantly lessen the risk that the same type of reaction event will occur again. The corrective actions provide reasonable assurance that as similar event will not occur in the future.

   I declare under penalty of perjury, pursuant to 28 U.S.C. § 1746, that the foregoing is true

and correct to the best of my knowledge, information, and belief.

Executed this 3rd day of June, 2024.

Carl Raymond Sykes
Senior Technical Safety Advisor for the National Nuclear Security Administration at the Los Alamos National Laboratory in Los Alamos, New Mexico